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ABSTRACT

Presented is a description of the creation of the National Forests system, how trees grow, managing the National Forests, types of management systems, and managing for multiple use, including wildlife, water, recreation and other uses. Included are: (1) photographs; (2) line drawings of typical leaves, cones, flowers, and seeds; and (3) descriptions of the douglas fir, ponderosa pine, southern pines, sugar maple, and white oak. Ten areas to visit and addresses of regional foresters to obtain more detailed information are also included. (SK)

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United States Department of Agriculture

Forest Service

Program Aid 1124

Trees of Our National Forests

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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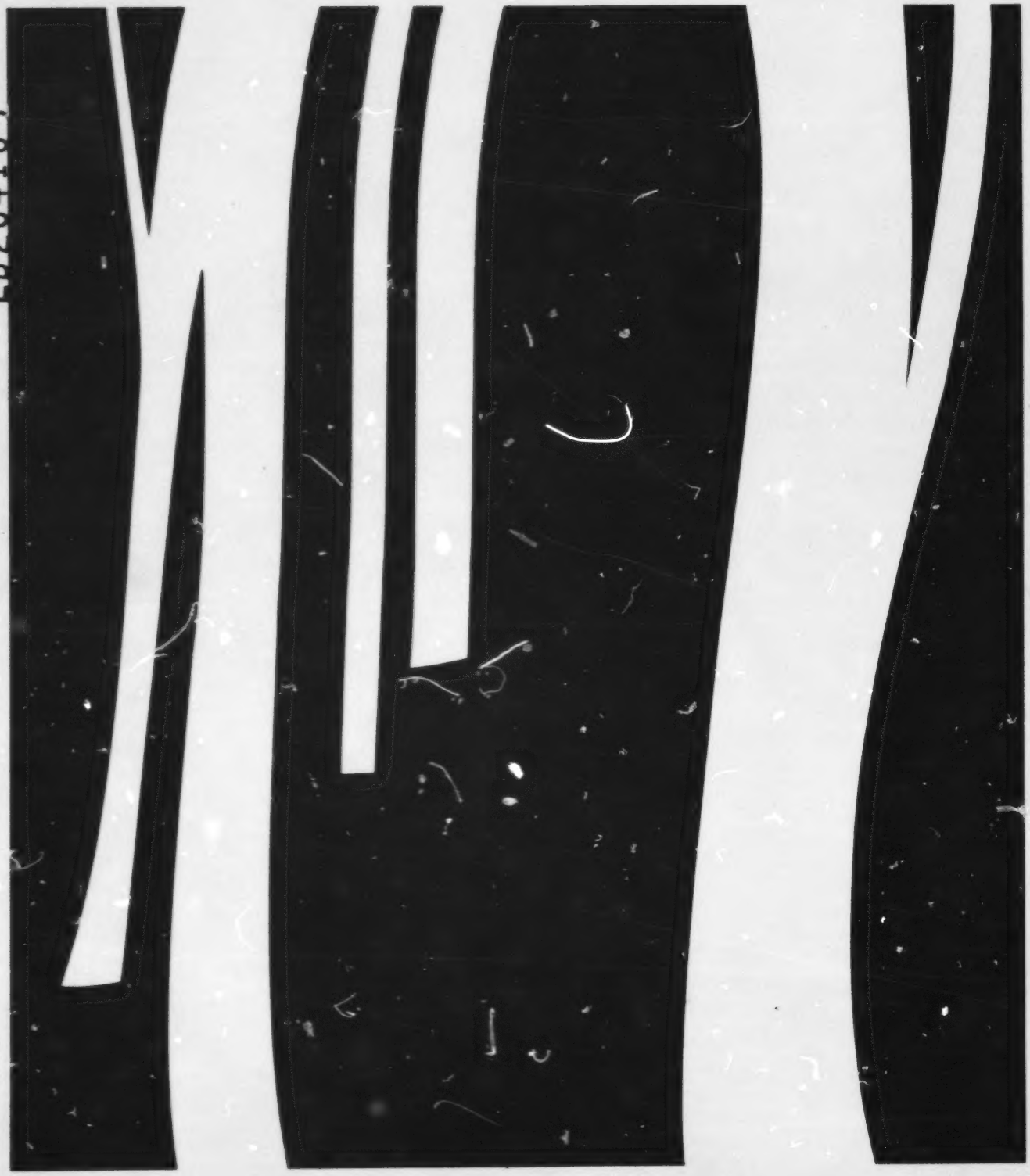

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Introduction

Of all America's riches, trees are among our most cherished. It would be a poor nation indeed without them. As living, growing things, they provide beauty and inspiration. As wood, logged and milled, they serve civilization in myriad ways.

When the first colonists arrived on this continent, they found a billion acres of trees stretching almost unbroken from the Atlantic to the Great Plains and beyond the Plains to the Pacific. Trees were the source of their first crude forts, their furniture, firewood, foods, and even medicines. Game and fish for their tables were harvested from cool woodland shadows.

Although we count more than 700 different species of native trees, in addition to others introduced from foreign lands, our forested areas have shrunken appreciably over the last 300 years. As our Nation has grown from one of farms and small villages to one of factories and large cities, the products and services derived from trees have multiplied many times over.

We no longer have to build forts, but the need for wood to build homes taxes our capability to supply the lumber required. Trees still provide us with fruit, nuts, and medicines, but the predominant use of trees is for wood. The variety of wood products is almost endless. We no longer think of trees as "the enemy" to be removed from the land as quickly as possible. Rather, we find that trees serve many other necessary and enjoyable purposes. They improve the quality of our environment. They shade our homes and streets; act as air-conditioners that cool and filter the air. They beautify our parks and highways; provide sound and wind buffers. They build and protect soil, help prevent floods, preserve watersheds, and provide homes for wildlife. They are the dominant vegetation of the forest where we can hike, fish, hunt, camp, swim, ski, or just sit in solitude.

National Forests—How They Began

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Although trees now cover about 754 million acres, a third of the total land area of the country, as early as 1891, some Americans were concerned about the rapid use of our timber resources. They persuaded Congress to adopt an act empowering the President to establish a system of National Forests. The establishing law stated that "no National Forest shall be established except to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States."

As a result, some 187 million acres have been designated as National Forests to be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes for the benefit of all Americans.

Take a walk in the woods of one of our 154 National Forests. See how these forests are being "managed," how their trees benefit from planning, and how proper logging enhances the health of the forest and its value for future generations. In the meantime, the following pages will tell the story of growing trees in a National Forest.

A forest is a vibrant, complex community of many forms of life. Within its depths, trees, shrubs, wildflowers, birds, animals, insects, and fungi all live together. Each, in its own life cycle, performs to some degree an important process in the survival of other living things. This unit of continuous exchange and circulation of energy and matter is called an *ecosystem,* a term derived from the word *ecology,* first proposed in 1885 by the zoologist Reiter. His combination of the Greek words "oikos" (meaning home) and "logos" (meaning study) implied a study of organisms at home. An ecosystem, therefore, is formed by the action and reaction of organisms to their surroundings.

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How Trees Grow

Trees are the dominant feature of forest ecosystems because they grow to be oldest and largest, and seem to be a permanent part of the system. They need soil, water, light, and space to grow. A large tree has hundreds of miles of roots to anchor it to the ground and penetrate the soil for essential mineral foods and water. Canals in the trunk carry these materials to their branches and leaf tips. There, tiny leaf cells aided by a green color called chlorophyll utilize the energy of sunlight, water from the roots, and carbon dioxide from the air to make a simple sugar. The sugar later passes to other cells of the tree where it combines with oxygen to create energy for the process of new growth and new wood.

The leaf buds on the tip of the twigs give a tree its height and extend its branches. The thickness of a tree comes from a single inner layer of cells, called the cambium, which extends from the root ends to the branch tips. During the growing season these cells divide continually, forming bark on the outside and wood on the inside.

In a field or lawn, a tree has space around it and receives sunlight evenly on all sides. As it grows, the limbs spread and the crown becomes broad and rounded. In a forest, a tree lives close to its neighbors, and in responding to overhead sunlight seems to reach upward. Its lower branches, cut off from the sunlight, wither and fall. It grows tall, with a long clean trunk. The crown is narrow and interlaced with other trees close by. Beneath the canopy of upper limbs and leaves, openings on the forest floor fill with new little trees. They shoot up from the ground or sprout from the stumps of older trees that either died or were cut.

F-372858

The life of a tree is threatened from beginning to end. Even if it survives the struggle with other plants for growing space, water, light, and food, it may be killed by insects or disease. Wind, storms, and wildfire will also take a toll. Those trees that can best tolerate all these conditions come to dominate the forest.

Still, survival of the fittest does not necessarily produce the kind of forest that people need or want. Not all species are useful as lumber, and yet they may crowd out or slow the growth of more desirable trees. Inevitably, trees also grow old, as evidenced by a slower growth rate, and decay and insects setting in. They eventually die, and stands of fine beautiful trees begin to deteriorate. The forest is not static; death and replacement go on continually.

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Managing Our National Forests

A National Forests need to sustain a healthy balance between this growth and death process, between the demands of commerce and those of other users, if they are to best meet the needs of the American people. The Forest Service, using the concept of multiple use, is responsible for the management of the National Forests.

Perhaps the first principle of good forest management is to understand just how a forest grows. The science of growing and caring for a forest is called *silviculture* (*silva,* the forest, and *culture,* to cultivate). Professional foresters must understand the surroundings and conditions in which specific trees grow best. They must also be familiar with society's use and needs for different kinds of trees.

Trees are placed in two general classes: (1) softwoods or conifers, the mostly evergreen cone bearers, and (2) hardwoods or broadleaf trees, of which most are deciduous, that is, they shed their foliage in the fall.

Among the conifers are pine, fir, spruce, redwood, and hemlock. Conifers were some of the first seed producing plants, developing about 200 million years ago. The oldest living trees in the world are the bristlecone pines, estimated to be 4,000 to 4,600 years old. Next oldest are the giant sequoias at 3,500 years old. Softwoods produce the bulk of our timber resources and are used extensively in construction and as fiber for paper pulp.

Broadleaf trees include oak, maple, hickory, beech, and yellow-poplar. Approximately 180 million years ago, a deciduous tree developed that could shed its leaves and remain dormant throughout the winter. It was the most advanced form of plant life on earth. Some live oaks are now estimated to be over 1,000 years old, but most hardwoods are comparatively short lived—50 to 300 years. Their wood is used primarily for furniture and pulp.

The forest manager knows that deciduous trees require some moisture throughout the year, while conifers can survive where the moisture is concentrated mostly in winter snowfall. But this is only the beginning, for the forester must study the tree seeds and understand the complex conditions required for them to root and grow.

Seed weights range from the heavy black walnut to the confetti-like gray birch. Some are so light and have wings so remarkably balanced they can ride the wind for miles. Some are sown by birds, and some by land-roving animals. Many trees produce seeds every year, while others produce less often. Of every 100 seeds reaching the ground only a few may sprout. The cones of the jack pine in the Lake States and the knobcone pine in the West require the heat of fire before they open and disperse seeds. The forester must decide which areas are best allowed to seed naturally from mature parent trees and which are best seeded by hand or by airplane. Millions of seedlings are grown in National Forest nurseries yearly, then planted in the forest by tree-planting crews. Once in the ground, the young trees may require some shade to survive; freedom from competing plants; and protection from animals, insects, and fires. These planted areas are called plantations.

Forest trees are also classified by their tolerance to shade. Sugar maple, beech, and red spruce are called "tolerant" trees because they grow well with a minimum of sunlight under the cover of taller trees. Southern pines, ponderosa pine, and Douglas-fir are classed as "intolerant" trees since they grow best in full sunlight. This tolerance is one of the basic factors governing the forester's choice of a silvicultural system to help the forest reproduce itself.

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Management Systems

Even-aged management

F-471042

Uneven-aged management

F-325008

There are two basic systems in use on National Forests—even-aged management and uneven-aged management. To achieve the desired age structure under these two management systems, foresters may select one of four silvicultural methods of harvest cutting: selection cutting, shelterwood cutting, seed-tree cutting, and clearcutting, with variations based on specific terrain and other conditions. A major difference between these methods is the size and type of opening made in the forest canopy to let sunlight reach the forest floor, and the effect of this on new seedling trees.

Selection Cutting

In selection cutting, the forester selects trees individually or in small groups for a harvest about every 5 to 10 years. Trees of all sizes are removed—mature trees to make room for new little trees, and small or poorly formed trees to reduce crowding so the remaining trees will grow better. Regeneration is continuous with trees of different ages and sizes growing side by side. The result is an uneven-aged forest. It contains mostly tolerant species of trees because the ground is either fully or partially shaded.

Shelterwood Cutting

In shelterwood cutting, the mature trees are removed in two or three cuts, thereby allowing new trees to grow in the shelter of older trees without having to compete with the other vegetation for full sunlight. By the time the last of the old trees are removed, the young trees are well established and develop into an even-aged stand. In this way, the area always has a tree cover.

Seed-Tree Cutting

Seed-tree cutting involves logging the entire stand with the exception of a few scattered mature, well-formed vigorous trees, which are left to produce seed for a new crop. These, in turn, are harvested after the new stand is well

1. Clearcutting
2. Seed-tree cutting

1. F-522277

2. F-478730

3. Shelterwood cutting
4. Selection cutting

3. F-437462

4. F-411499

established. The appearance of the forest is altered drastically. An even-aged stand will be developed with tree species that require lots of light for good growth. This method works very well with the southern pines. Their seeds are carried by the wind, and isolated seed-trees well resist the sudden exposure to strong winds.

Clearcutting

Clearcutting is the removal of all trees from an area. For tree species that are most intolerant of shade, this method is the most practical. It eliminates all shade sources and prepares the area for rapid seed germination and growth of a new even-aged stand. The new trees may grow from seeds, from seedlings already on the ground, or from seeds blown in from nearby stands. In some areas, they may develop from the sprouting of roots and stumps. Many times these clearcut areas are handplanted. This system requires careful location of boundaries to fit the landscape, and appropriate cleanup of debris to improve the appearance of the harvested area.

Douglas-fir is one of the species commonly managed by clearcutting. Selection cutting of this giant species was tried in the National Forests, but with little success. It proved too difficult to remove the huge trees, which were sometimes over 200 feet tall, without damaging others as they fell. Those remaining in a stand, without protection from neighboring trees, became victims of blowdown in high winds. In addition, Douglas-fir would not reproduce itself without the benefit of full sunlight. Now, shelterwood cutting or clearcutting in patches is practiced on blocks of no more than 60 acres, thereby allowing plenty of sunlight to reach the new seedlings.

Throughout the 187 million acres of National Forests there are other important forest uses that must be included in management plans. Wildlife, water, recreation, range, and beauty are weighed in balance with the need to produce timber, and may tip the scale for no cutting, light cutting, or clearcutting.

Managing for Multiple-Use

F-383593

Wildlife

One-third of the big-game animals, and countless numbers of small mammals, songbirds, upland game birds, waterfowl, reptiles, and fish live in our National Forests. If these forests are to provide homes and food for maximum numbers of creatures, there must be a large variety of plant types—grasses, low-growing forbs, fruitbearing bushes, leafy saplings, vigorous shrubs, as well as older trees. Creating new openings by harvest cuts increases the "forest edge" where this great variety of cover and food grows. Every effort is made to blend these openings with the terrain and the remaining forest. Harvest cuttings are done so as to leave areas of older trees for wildlife, especially den trees and dead snags, which are important to squirrels and cavity-nesting birds. Strips of trees are also left along streambanks and lakes to protect the fish habitat. They provide shade and cooler water temperatures, while keeping silt out of the water.

F-253290

Water

The need to protect the forest as a natural reservoir of water is also a factor to be considered. Uncontrolled logging and fire can strip the land of its porous cover, leaving it unable to absorb water. The disastrous consequences are soil erosion, flash floods, and muddy streams. Depending upon the soil conditions, the forester may plan for only a selective cut so that trees will be left to shelter the watershed.

Recreation

Providing a good outdoor experience to the forest visitor is another element in the overall planning. The beauty of the landscape directly affects the experience. Therefore, any timber cutting must be coordinated with the recreational use of the area.

In campgrounds and picnic areas, scenic quality is protected by limiting cutting to dead, dying, and diseased trees.

In natural areas, plant communities and other natural features are subject only to that amount of management needed to make them accessible for study. In wilderness, timber harvesting is not allowed. These roadless tracts within the National Forests are held in trust by the Forest Service for preservation in their natural state. People are only visitors who should leave nothing behind but their footsteps.

Varying Needs

Each forest resource and each of the many uses of these resources is accorded a place in balancing the long-range multiple-use plan for every National Forest.

Trees, like people, have their own characteristics and habits. The stand, or community of forest trees, nearest your home can be as different from the next one as your town is from a town in the next State. This means that the National Forests, located in 39 States and a Commonwealth—from the White and Green Mountains of New England south to Puerto Rico, west to the Pacific, and north to Alaska—have to be managed, harvested, and renewed in different ways.

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1. Great Horned Owl
2. Woodchuck

3. Porcupine
4. Traill's Flycatcher

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2. F-361489

3. F-461517

4. F-375578

Great Trees of the American Forest

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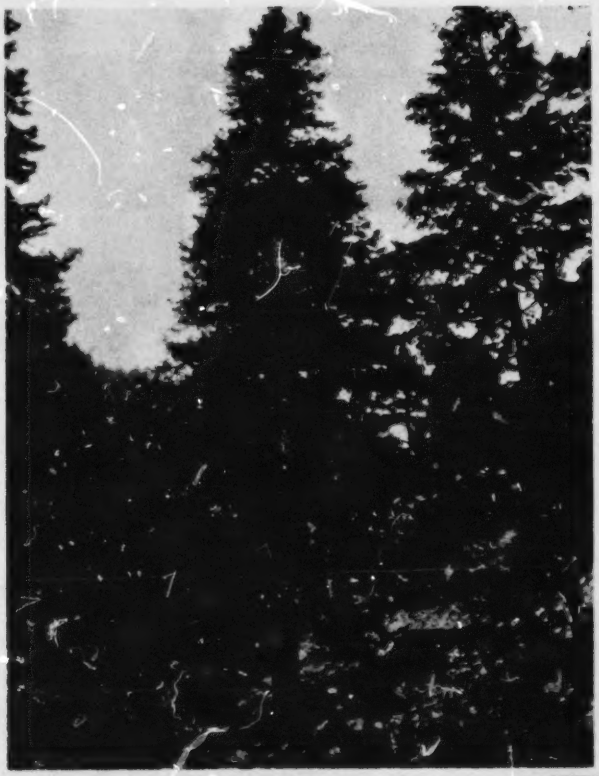

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Douglas-fir

Douglas-fir, ponderosa and southern pines, yellow-poplar, sugar maple, and the white oaks are great American trees, beauties on the landscape wherever they stand. As forest trees, they are grown to serve many useful purposes. You can derive enjoyment by traveling through the National Forests and observing these and other species and learning why each grows best in its particular environment.

Douglas-fir, the State tree of Oregon, produces more wood products than any other American tree and is perhaps the world's most valuable species of conifer. It grows in moist forests between the Rocky Mountains and the Pacific coast, reaching its largest size on the western slopes of the Cascade Mountains and along the northwest coast, where the soil is rich and the rainfall is plentiful. Douglas-fir grows second in size only to the giant sequoias and the redwoods, reaching heights of 200 feet or more and diameters of 3 to 6 feet. Under favorable conditions, in-

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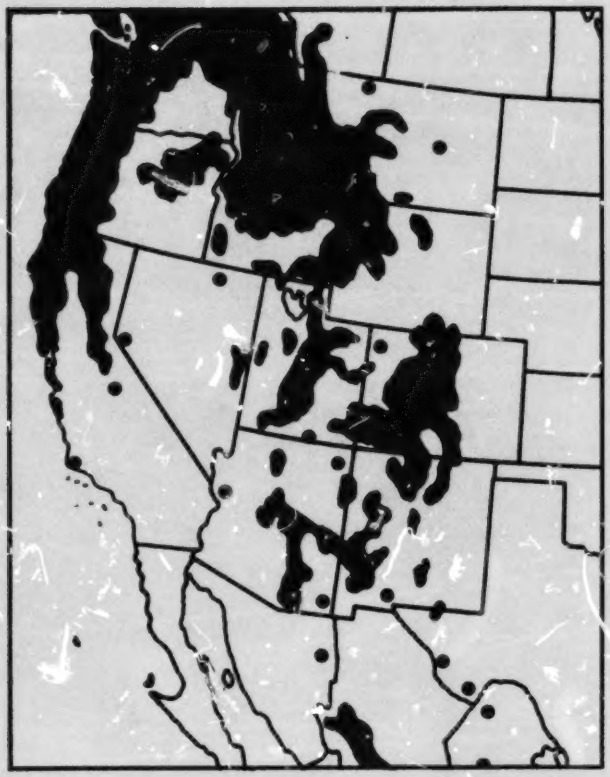

dividual trees may live 1,000 years, grow to be 10 feet wide and 300 feet tall, and have furrowed, cinnamon-brown bark 1 foot thick.

Douglas-fir scatters its seed prolifically (with an average of 42,000 seeds per pound), causing the young trees to grow fast and dense in the mineral soil of the Northwest. At 10 years of age they are 15 feet high, and at 25 years they are twice as tall with as many as 1,000 trees to the acre. As they grow, the forest thins naturally; in a century the trees can reach 200 feet in height and may number about 115 to the acre.

Small trees are hardy and attractive for ornamental planting. With their soft, rich green needles hanging on long after cutting, they are also beautiful and popular Christmas trees.

The wood, yellowish to light red in color, is strong, fairly lightweight, and resists decay.

The size of the tree permits the manufacturing of lumber remarkably free of knots and other defects, with pieces 60 feet long by 2 feet square. The lumber and plywood industries depend heavily on Douglas-fir for raw materials. Other uses (fiber-board, book paper, wrapping paper) have been developed for the sawmill leftovers.

For years this unique conifer was a botanical puzzle, having been called spruce, hemlock, balsam fir, and even pine. The scientific name, which means false hemlock (*Pseudotsuga menziesii*), honors Dr. Archibald Menzies, physician and naturalist who accompanied Captain George Vancouver on his explorations of the Pacific in the late 1700's. Menzies discovered this tree on the Pacific coast in 1791. It remained for the roving Scotch botanical collector, David Douglas, to send the first seeds to Europe in 1827. Soft, deep yellow-green or blue-green needles about an inch long, flattened and pointed, grow all around the twig. The oval cone with distinctive three-pronged bracts hangs like a pendant.

Ponderosa pine

Ponderosa pine, a large and hardy tree, grows in every State west of the Great Plains, and is the State tree of Montana. It is the most widely distributed native pine of the Western Hemisphere and reaches maximum growth in the resin-scented Sierra forests of California. Ponderosa pine sometimes attains more than 200 feet in height, 5 to 8 feet in diameter, and 500 years in age.

During its early life, ponderosa pine bark is dark brown, nearly black in color, thereby prompting the local names of "blackjack" and "bull pine." Then it becomes plated and scaly, turning a distinctive cinnamon-brown to orange-yellow color. Bluish-green needles, 4 to 7 inches long, grow in clusters of three or sometimes two. The brown cones are clustered too, standing erect on small stalks and growing 3 to 6 inches in length. Like most other pines, the ponderosa's cones require two seasons to mature.

Ponderosa pine (*Pinus ponderosa*) is the most valuable and extensive timber tree in the Southwest, spanning a 300-mile belt northwest from the Gila National Forest of New Mexico to the Kaibab Plateau on the Kaibab National Forest in Arizona. It grows just above the sagebrush and pinyon-juniper woodland, and requires less water than most other commercial trees. The seedlings often withstand drought, surviving solely on the dew of night. A year-old tree will sink its roots 2 feet deep. In many places on southwestern forest lands, as many as 6,000 to 10,000 young ponderosa pines are crowded on a single acre, competing for water, soil nutrients, and light.

The ponderosa pine, rising to a broad, conical crown, makes a handsome ornamental tree. It also makes hard, strong, fine-grained wood. High-grade ponderosa pine is used for doors, sashes, frames, and paneling; the low-grade wood for boxes, rafters, joists, and railroad ties.

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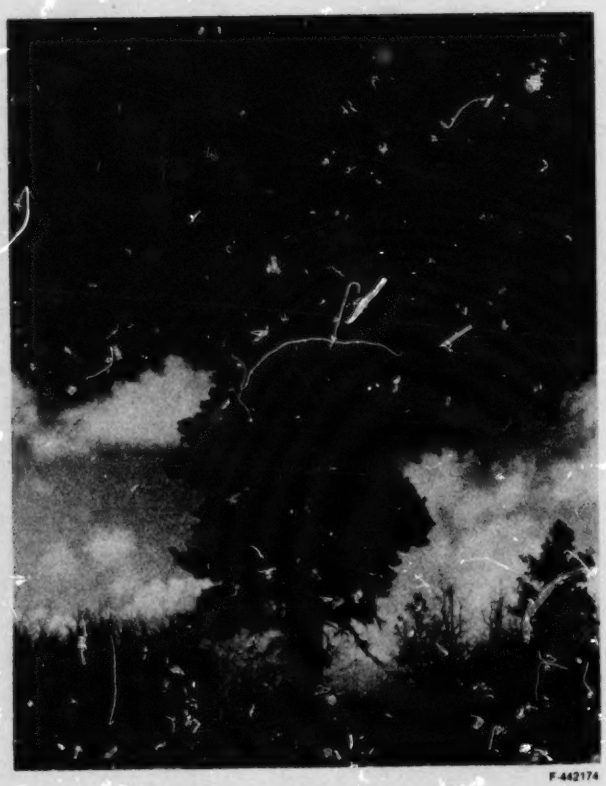

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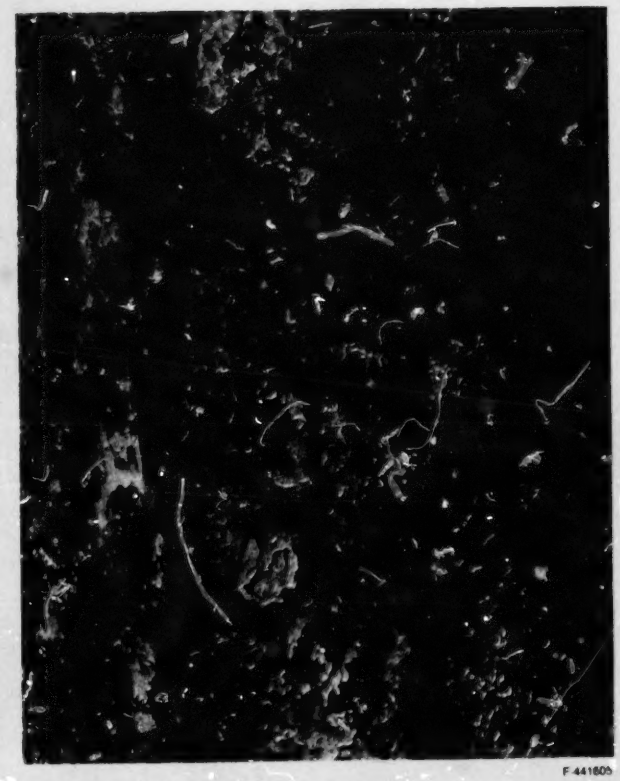

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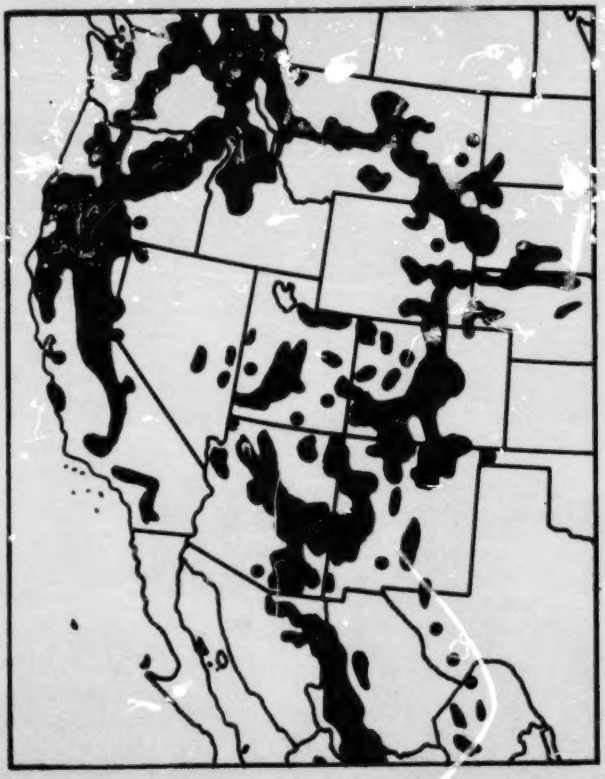

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Southern pines

Southern pines now rank first as a source of the Nation's timber supply. An indication of the South's role in forestry is the fact that it produces the majority of all forest tree seedlings grown in the United States. The pine is the State tree of Alabama, Arkansas, and North Carolina.

The most plentiful southern pine, loblolly (*Pinus taeda*), often grows in moist depressions, which in the early days were known as "loblollies." Its needles are borne three in a cluster and grow 6 to 9 inches long. This rapidly growing tree develops a clean, straight trunk, reaches maturity in about 70 years, and sometimes yields 20,000 to 30,000 board feet of timber per acre. Slash pine (*P. elliottii*) is a beautiful tree of the Coastal Plain with lustrous dark green needles, usually three in a cluster 8 to 12 inches long, and a purplish-brown bark. Another major southern pine is shortleaf (*P. echinata*), characterized by a tapering trunk up to 120 feet in height, and dark green needles, three in a cluster, 10 to 15, and sometimes 18, inches long. Longleaf and slash pines are the principal sources of turpentine and resin, known as naval stores because of their early use in caulking wooden ships. There are six other native pine species in the South. The southern pines have a variety of other uses, notably as paper pulp, plywood, house-building materials, fuel, and general millwork.

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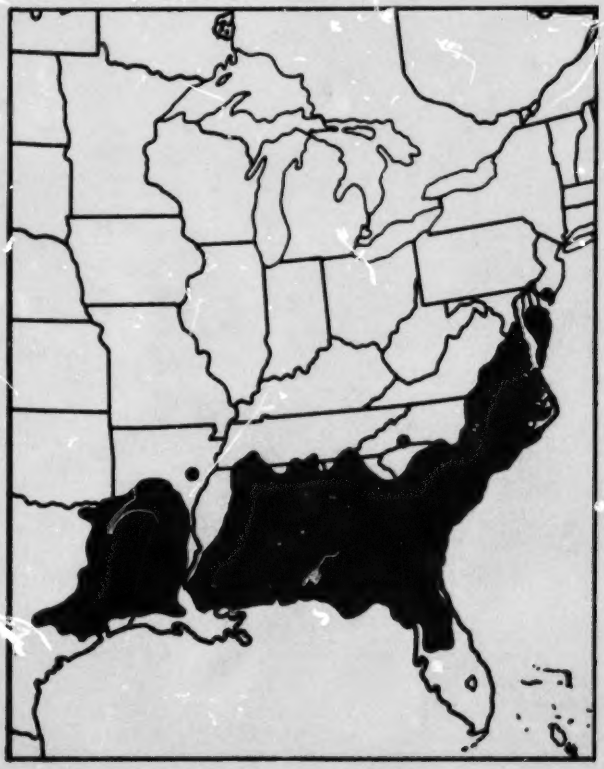

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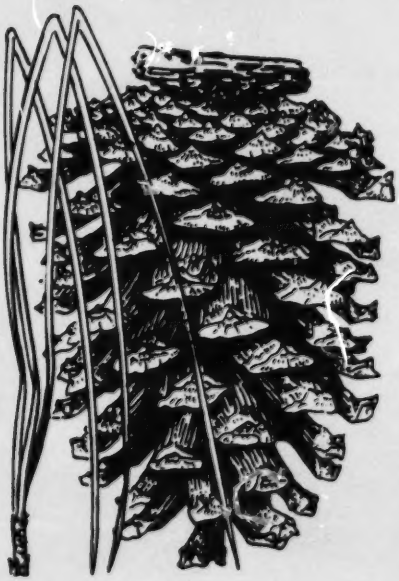

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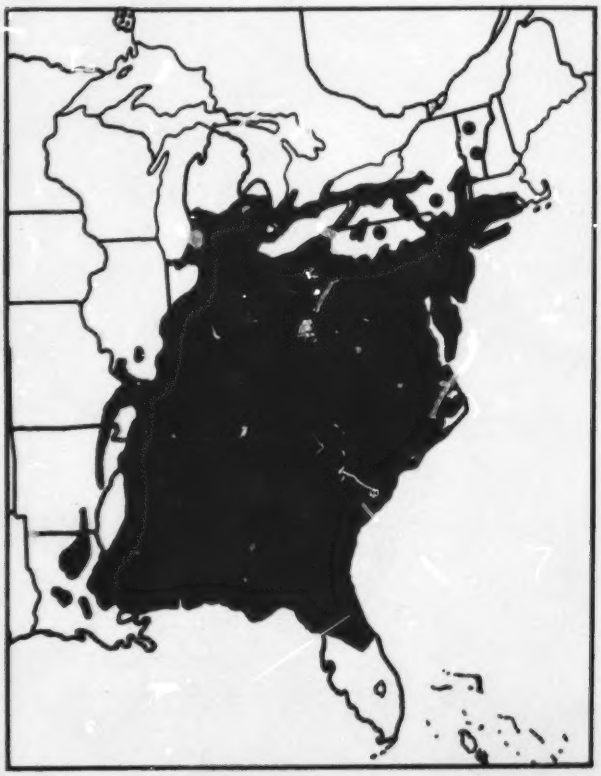

Yellow-poplar

Yellow-poplar, or tuliptree, distinguished by its excellent form and rapid growth, is one of the tallest and most valuable hardwoods in the United States. Widely distributed through the Eastern States, it grows in sheltered valleys of the Appalachians, in stands mixed with other large broadleaf trees and an understory of dogwood, azalea, rhododendron, and many wild flowers. It is the State tree of Indiana, Kentucky, and Tennessee. The yellow-poplar reaches heights of 80 to 150 feet (maximum recorded 198 feet) and diameters of 8 to 10 feet, with its straight, deeply furrowed trunk clear of limbs for much of its length. It may live 250 years or more.

Hardly any American tree has a richer tradition than the yellow-poplar. "Everyone," wrote

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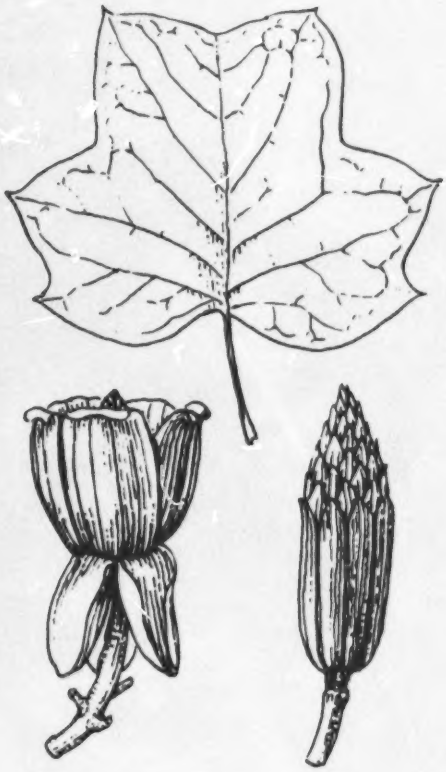

William Byrd, in his early *Natural History of Virginia*, "has some of these trees in his gardens and around the house, for ornament and pleasure." Indians and settlers made dugouts from it, hence one of its common names—"canoe tree." George Washington, who had an astonishing knowledge of many trees and their uses, planted yellow-poplars at Mount Vernon in February 1785. The taller of the two that have survived was named the Independence Tree, an official bicentennial designation.

Though called yellow-poplar, because of its light-colored wood, it is really a member of the magnolia family and bears the scientific name *Liriodendron tulipifera,* "lily tree bearing tulips." Its large flowers, a blend of green and yellow tinged with orange, are among the early spring arrivals in the forest, and are a welcome source of nectar to honeybees. The blossoms emerge above a background of long-stemmed, glossy, notched leaves that tremble in the slightest breeze. The flowers develop into dry, cone-like fruit, from which seeds fall twirling to the ground.

Young trees shoot toward the light, and in some of the best stands grow 50 feet in 10 years. The twigs and branches of very small yellow-poplar are tasty to deer, and are sometimes extensively damaged by browsing.

With its attractive flowers, foliage, and symmetrical form, the yellow-poplar is frequently used for lawn and street planting. The straight-grained wood is used in furniture and woodware, for veneer, and in construction. Its value as a lumber tree has greatly increased since the loss of the once great forests of chestnut. The chestnut was regarded as the finest hardwood tree in America before it fell victim to a blight introduced from Asia, and has since been nearly exterminated.

F-401473

Sugar maple

Sugar maple, the most abundant and versatile of all the maples, the showy beauty of the autumn landscape, is the source of fine hardwood lumber and maple syrup. It can be found in nearly every State east of the Great Plains. Its largest stands, usually mixed with other hardwoods, are located in the Lake States and New England. Sugar maple grows slowly but lives 300 to 400 years, and reaches heights of 70 to 110 feet. It is the State tree of New York, Vermont, West Virginia, and Wisconsin.

The scientific name, *Acer saccharum*, refers to the sweetness of the sap, from which maple syrup and sugar are boiled at winter's end. Like sugarcane, this maple has an unusually high concentration of sugar, produced the year before and stored in the roots and trunk over the winter. With leaf buds swelling and spring approaching, the sap rises. It can be tapped just inside the bark by inserting a spout and attaching a tube, or

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F-219143

hanging a bucket beneath it. In this sturdy, stately tree, tapping may go on for years without seriously affecting the life of the tree or the quality of its wood. In spring, after the sugaring-off season, the maple sends forth clusters of greenish-yellow flowers from which bees obtain pollen and nectar. In early summer, seeds mature and fall to the ground on papery wings. Later, in autumn, sugar residues in the leaves combine chemically with other substances to produce the most striking orange-yellows and reds of the hardwood landscape.

Maple has been a choice wood since the time of the Romans, who used it for their pikes and lances, as well as for furniture. Known in the lumber trade as hard maple, the strong, close-grained wood makes firm flooring, lustrous furniture, bowling alleys and pins, and musical instruments. Unusual patterns sometimes form in the wood grain and are known as curly maple or bird's-eye maple, highly prized for furniture and cabinets.

F-477196

F-270545

White oak

White oak has been known and loved since the earliest days of settlement in the New World. It reminded the colonists of the English oak—and the Indians showed them how to boil and eat its large acorns. White oak grows from New England to Florida, through the Midwest to the Lake States, and west to Oklahoma and Texas. It is the State tree of Connecticut and Maryland.

This large, broad-crowned tree commonly reaches heights of 100 feet, sometimes up to 150 feet, and has diameters of 3 to 8 feet. Its whitish or pale grey bark is decidedly lighter in color than that of the black (or red) oak group. Its scientific name, *Quercus alba*, includes the classic Latin generic name for all oaks, *Quercus*, and *alba* (white), applied by the famous botanist Linnaeus.

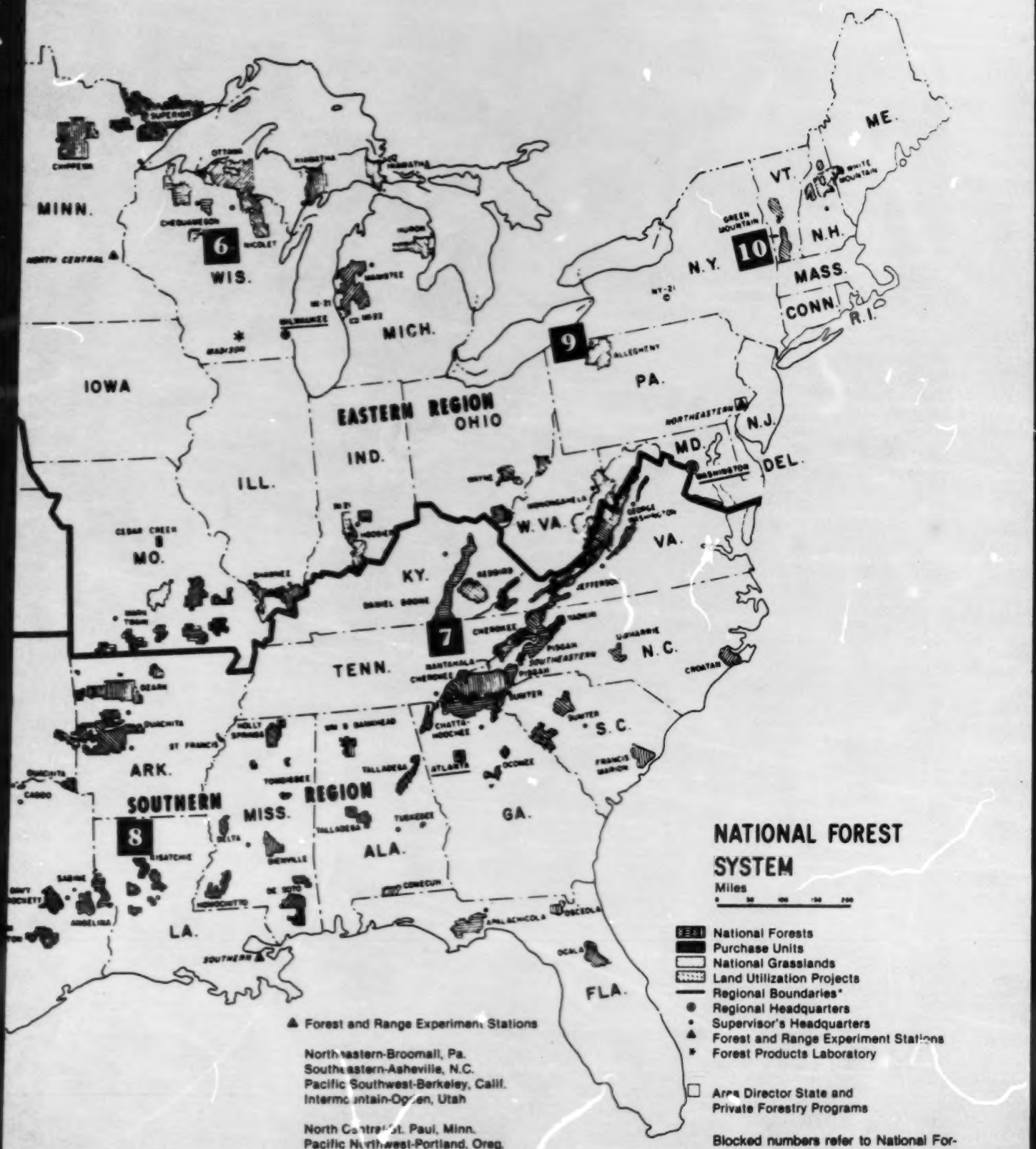
The large leaves have five to nine rounded lobes, and unlike those of the black oaks, they have no bristles. The deep somber brown, or russet, of the oak leaf is a familiar feature of the autumn landscape, and on young trees many dead leaves remain attached throughout the winter. Acorns, the seed of the oak, mature in early autumn. These shiny brown, sweet-flavored nuts, known as mast, are an important food for deer, bears, squirrels, and birds.

The oak grows slowly but lives long, sometimes 500 to 600 years. In open fields or lawns the trunk is shorter and the branches spread outward 80 feet or more. In the forest, white oak grows best in deep humus soil and is found in a mixture with other oaks, hickory, and maple.

Of the more than 20 species of commercially important Eastern oak, white oak is outstanding. From the earliest days it provided a valuable source of timber for houses, ships, and furniture. Strength, durability, and beauty are characteristics of white oak, and its uses range from barrels and bridges to flooring and fine cabinets.

F-387650

PACIFIC NORTHWEST REGION
1
2
WASH.
OREG.
NORTHERN REGION
MONT.
N. DAK.
S. DAK.
4
IDAHO
WYO.
NEV.
INTERMOUNTAIN REGION
UTAH
NEBR.
ROCKY MOUNTAIN REGION
COLO.
KANS.
3
PACIFIC SOUTHWEST REGION
CALIF.
5
SOUTHWESTERN REGION
ARIZ.
N. MEX.
OK
TEXAS
ALASKA REGION
ALASKA
HAWAII
CARIBBEAN
PUERTO RICO AND U.S. VIRGIN ISLANDS


MINN.
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SOUTHERN REGION
EASTERN REGION
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ME.
VT.
N.H.
MASS.
CONN.
R.I.
N.J.
MD.
DEL.
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NATIONAL FOREST SYSTEM
Miles
National Forests
Purchase Units
National Grasslands
Land Utilization Projects
Regional Boundaries*
Regional Headquarters
Supervisor's Headquarters
Forest and Range Experiment Stations
Forest Products Laboratory
Area Director State and Private Forestry Programs
▲ Forest and Range Experiment Stations
Northeastern-Broomall, Pa.
Southeastern-Asheville, N.C.
Pacific Southwest-Berkeley, Calif.
Intermountain-Ogden, Utah
North Central-St. Paul, Minn.
Pacific Northwest-Portland, Oreg.
Rocky Mountain-Ft. Collins, Colo.
Southern-New Orleans, La.
Blocked numbers refer to National Forests identified on the following pages.

In every National Forest there are places where visitors can see and learn more about America's trees—the firs, pines, poplars, maples, and oaks already briefly described, and others of the National Forests' 175 commercially important species. These areas of outstanding interest, demonstrating various phases of tree growth, management, and use, are located in every section of the country. Among these are the following 10:

1. *The Big Acre, near Lake Quinault, Wash., Olympic National Forest, Pacific Northwest Region.* This plot encompasses giant Douglas-fir and other species growing in favorable conditions of the rain forest. A replica, exhibited in diorama, is in the Hall of North American Forests in the American Museum of Natural History in New York. On the east side of the Olympic Peninsula, Mount Walker Summit (elevation 2,769 feet) looks deep into ridges and valleys with examples of block cuttings where Douglas-fir is growing anew. The name, Big Acre, derives from the fact that the area yields the largest volume of timber per acre of any known.

2. *Wind River Experimental Forest, where forest research began in the Pacific Northwest, near Carson, Wash., Gifford Pinchot National Forest, Pacific Northwest Region.* Begun in 1912, the arboretum tests trees from all temperate parts of the world to compare with our native species. Separate areas are devoted to shade tolerance, seed dissemination, rodent control, and other studies. The Thornton T. Munger Research Natural Area, established as a preserve for scientific and educational purposes, is typical of the Douglas-fir and western hemlock forest community. And nearby at the Wind River Nursery, trees are produced yearly for reforestation in the Northwest.

3. *Institute of Forest Genetics near Placerville, Calif., Eldorado National Forest, Pacific Southwest Region.* The Eddy Arboretum, named for its founder James G. Eddy, contains pines from all over the world: 70 species, 35 additional varieties, and 90 different hybrids. It was established in 1925 for breeding and improving this group of timber trees. The Institute, working to propagate faster growing, disease-resistant trees, is successfully crossbreeding species such as Jeffrey and Coulter pines into superior strains.

4. *Town Creek Plantations, Centerville, Idaho, north of Idaho City Ranger Station, Boise National Forest, Intermountain Region.* In 1955, on the 50th anniversary of the Forest Service, these 200 forest acres were dedicated to Idaho's youth. Ponderosa pine plantings were made every year for 5 years, using different techniques, and are being studied continually in order to develop the best methods for regeneration. In addition, the Boise Basin Experimental Forest near Idaho City has 800 acres of uneven-age ponderosa pine and Douglas-fir.

5. *Kaibab Plateau, a managed multiple use area near Jacob Lake, Ariz., Kaibab National Forest, Southwestern Region.* The Kaibab Plateau, 60 miles long and 40 miles wide, is rich in scenery, wildlife, and timber (ponderosa pine and Douglas-fir). At one point, the population of the Kaibab deer herd reached 100,000, far beyond the capacity of the range. This caused destruction of the vegetation, and many deer died of starvation. Multiple use management now ensures adequate wildlife habitat.

6. *Trees for Tomorrow Camp, Eagle River, Wis., Nicolet National Forest, North Central Region.* Trees for Tomorrow is operated primarily as a school for middle and high school students by Wisconsin wood industries in cooperation with the Forest Service. The marked nature trail demonstrates how the forest lives and grows, its relationship with other natural resources, and how people supplement nature's management.

7. *Joyce Kilmer Memorial Forest, near Robbinsville, N.C., Nantahala National Forest, Southern Region.* Now largely included within the 15,000-acre Joyce Kilmer-Slickrock Wilderness Area, this 3,800-acre tract of virgin forest was dedicated in 1936 after the Veterans of Foreign Wars suggested a fitting shrine be created in memory of the author of "Trees." Within the national shrine are 100 species of hardwood trees, including giant yellow-poplar, oak, birch, basswood, maple, buckeye, and cherry, with shrubs, vines, and flowers carpeting the forest floor.

F-237465

F-519955

8. *Longleaf Trail Vista, near Alexandria, La., Kisatchie National Forest, Southern Region.* This scenic route takes you through the Kisatchie Hills, very unusual and rugged sandstone outcroppings forming flat topped mesas up to 350 feet high. It is a favorite spot with bird-watchers, who have identified more than 250 species here. This forest produces the largest volume of pine of any of the southern forests and also offers a great variety of recreational opportunities.

9. *Hearts Content Scenic Area, near Warren, Pa., Allegheny National Forest, Eastern Region.* This is a 120-acre primeval forest of towering eastern white pine, parts of which were presented to the Government by a lumber company and various women's clubs. About 15 miles east of Hearts Content is the Tionesta Scenic Area, which contains more than 2,000 acres managed to maintain the climax forest in an undisturbed state and to allow the public to enjoy the grandeur of the virgin forest that once covered the Allegheny Plateau.

10. *Federation Forest, on the road between Danby and Peru, Vt., in Ten Kiln Meadows, Green Mountain National Forest, Eastern Region.* Driving through the heart of the Green Mountains, you will see managed northern hardwood forest types, including sugar maple.

In addition to these areas, many of the 653 National Forest ranger stations and visitor centers contain displays on local trees. All are designed to show the American people how the resources of the National Forests are cultivated and used to serve the country now and in the future.

The Forest Service, U.S. Department of Agriculture, is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing nation.

Information

For detailed information on visiting the National Forests, see the map for the headquarters of the Forest Service Region administering the areas you are interested in and write to the appropriate Regional Forester, Forest Service:

Federal Building
Missoula, MT 59807

11177 W. 8th Ave.
Box 25127
Lakewood, CO 80225

517 Gold Ave., SW
Albuquerque, NM 87102

324 25th St.
Ogden, UT 84401

630 Sansome St.
San Francisco, CA
94111

319 SW Pine St.
P.O. Box 3623
Portland, OR 97208

1720 Peachtree Rd., NW
Atlanta, GA 30309

633 West Wisconsin
Ave.
Milwaukee, WI 53203

Federal Office Building
P.O. Bo 1628
Juneau, AK 99802

State and Private Forestry Areas

Northeastern Area-
S&PF
370 Reed Rd.
Broomall, PA 19008

Southeastern Area-
S&PF
1720 Peachtree Rd., NW
Atlanta, GA 30309

Laboratory

Forest Products Laboratory
North Walnut St.
P.O. Box 5130
Madison, WI 53705

Research Headquarters
Forest and Range Experiment Stations

809 NE 6th Ave.
P.O. Box 3141
Portland, OR 97208

1960 Addison St.
Box 245
Berkeley, CA 94701

507 25th St.
Ogden, UT 84401

240 West Prospect St.
Fort Collins, CO 80521

Folwell Ave.
St. Paul, MN 55108

370 Reed Rd.
Broomall, PA 19008

T-10210 U.S. Postal
Service Bldg.
701 Loyola Ave.
New Orleans, LA 70113

Post Office Building
P.O. Box 2570
Asheville, NC 28802

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